Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] A measuring electrode portion, which is implanted in an olfactory bulb of a test animal for measuring an electrical signal generated in an olfactory bulb or supplying an electrical signal to the olfactory bulb, the measuring electrode portion comprising a plurality of micro electrodes, each of which detects an electrical signal from a nerve cell of the olfactory bulb, wherein
the micro electrodes are arranged based on an electrical signal pattern which is generated in the olfactory bulb as a result of administration of an olfactory mucosa stimulating compound to an olfactory mucosa of the test animal.

[c2] A measuring electrode portion according to claim 1, wherein each of the micro electrodes has an area of 1 μm^2 to 100,000,000 μm^2.

[c3] A measuring electrode portion according to claim 2, wherein the micro electrodes are arranged in a matrix.

[c4] A measuring electrode portion according to claim 3, wherein an interval between adjacent micro electrodes is 10 to 10,000 μm.

[c5] A measuring electrode portion according to claim 3, wherein: the micro electrode is formed at a tip of a needle-shaped conductive lead; a predetermined number of needle-shaped conductive leads are bound together such that the micro electrodes are placed with a predetermined interval, so as to form an electrode column; and a plurality of electrode columns are placed in parallel to each other with a predetermined interval therebetween.

[c6] A measuring electrode portion according to claim 5, wherein the needle-shaped conductive lead has a diameter of 1 μm to 1,000 μm.

[c7] A measuring electrode portion according to claim 5, wherein the needle-shaped conductive lead is formed by covering a needle-shaped conductive material with an insulative film except for the micro electrode at the tip thereof.

[c8] A measuring electrode portion according to claim 7, wherein the conductive material of the needle-shaped conductive lead is any of gold, platinum, ITO, titanium nitride, copper, silver, tungsten, and conductive rubber.

[c9] A measuring electrode portion according to claim 7, wherein the insulative film that covers the needle-

shaped conductive lead is any of polystyrene, acrylic resins, polycarbonate, polyimide.

[c10] A measuring electrode portion according to claim 5, wherein the tip of the needle-shaped conductive lead is covered with a film of a biomaterial.

[c11] A measuring electrode portion according to claim 1, wherein each of the micro electrodes is placed on a film-shaped substrate.

[c12] A measuring electrode portion according to claim 11, wherein each of the micro electrodes has the shape of a ring, and is placed around a periphery of a through-hole formed in the substrate.

[c13] A measuring electrode portion according to claim 12, wherein the inner diameter of the through-hole formed in the substrate is equal to or smaller than 10,000 μm.

[c14] A measuring electrode portion according to claim 11, wherein the micro electrodes are formed of any of gold, platinum, ITO, titanium nitride, copper, silver, and tungsten.

[c15] A measuring electrode portion according to claim 11, wherein the substrate is made of a biomaterial.

[c16] A measuring electrode portion according to claim 11,

wherein the substrate is made of any of polyethylene terephthalate, teflon, silicone rubber, a semiconductor material, and electrically conductive rubber.

[c17] A measuring electrode portion according to claim 1, wherein: the micro electrodes are provided on a front surface and a back surface at the same positions; each micro electrode provided on one of the surfaces of the substrate detects an electrical signal pattern which induces a physiological response in a test animal; and each micro electrode provided on the other surface of the substrate applies a signal which is the same as or different from the detected signal.

[c18] A measuring electrode portion according to claim 1, wherein the micro electrode is covered in a film of a biomaterial.